

Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended): A semiconductor device comprising:

a capacitor formed above a semiconductor substrate and including

a straight cylindrical-shaped storage electrode having a hollow cylindrical projection, an edge of the hollow cylindrical projection being located on an uppermost part of the straight cylindrical-shaped storage electrode,

a capacitor dielectric film formed on the storage electrode, and

a plate electrode formed on the capacitor dielectric film,

the edge of the hollow cylindrical projection being rounded and having a larger thickness than a thickness in a remaining portion of the hollow cylindrical projection.

2. (Currently Amended): A semiconductor device according to claim 1, wherein

the straight cylindrical-shaped storage electrode has a thickness gradually thickened toward the edge of the hollow cylindrical projection.

3. (Currently Amended): A semiconductor device according to claim 1, wherein

a side surface of the hollow cylindrical projection is tilted and a circumferential length of the hollow cylindrical projection is gradually increased toward the edge of the hollow cylindrical projection.

4. (Currently Amended): A semiconductor device according to claim 2, wherein a side surface of the hollow cylindrical projection is tilted and a circumferential length of the hollow cylindrical projection is gradually increased toward the edge of the hollow cylindrical projection.

5 - 6. (Canceled)

7. (Previously Presented): A semiconductor device according to claim 1, wherein a border portion between a side surface and a bottom surface of the straight cylindrical-shaped storage electrode is rounded.

8. (Previously Presented): A semiconductor device according to claim 2, wherein a border portion between a side surface and a bottom surface of the straight cylindrical-shaped storage electrode is rounded.

9. (Currently Amended): A semiconductor device comprising:
a capacitor formed above a semiconductor substrate and including
a straight cylindrical-shaped storage electrode having a hollow cylindrical projection, an edge of the hollow cylindrical projection being located on an uppermost part of the straight cylindrical-shaped storage electrode,
a capacitor dielectric film formed on the storage electrode, and

a plate electrode formed on the capacitor dielectric film,
the straight cylindrical-shaped storage electrode being formed of a metal film and
having a larger thickness at the edge of the hollow cylindrical projection than a thickness in a
remaining portion of the hollow cylindrical projection.

10. (Currently Amended): A semiconductor device according to claim 9, wherein
the straight cylindrical-shaped storage electrode has a thickness gradually thickened
toward the edge of the hollow cylindrical projection.

11. (Currently Amended): A semiconductor device comprising:
a capacitor formed above a semiconductor substrate and including
a straight cylindrical-shaped storage electrode having a hollow cylindrical
projection, an edge of the hollow cylindrical projection being located on an uppermost part of the
straight cylindrical-shaped storage electrode,
a capacitor dielectric film formed on the storage electrode, and
a plate electrode formed on the capacitor dielectric film,
the straight cylindrical-shaped storage electrode being formed of a metal film and
the edge of the hollow cylindrical projection being rounded.

12. (Currently Amended): A semiconductor device according to claim 11, wherein
the straight cylindrical-shaped storage electrode has a thickness gradually thickened
toward the edge of the hollow cylindrical projection.

13. (Withdrawn): A method for fabricating a semiconductor device comprising the steps of:

forming an insulation film above a semiconductor substrate;

forming an opening in the insulation film;

forming a storage electrode electrically connected to the semiconductor substrate and formed in the opening;

conducting a heat treatment to round an upper end of the storage electrode;

forming a capacitor dielectric film on the storage electrode; and

forming a plate electrode on the capacitor dielectric film.

14. (Withdrawn): A method for fabricating a semiconductor device according to claim 13, further comprising, after the step of forming the storage electrode, the step of:

removing the insulation film.

15. (Withdrawn): A method for fabricating a semiconductor device according to claim 13, wherein

in the step of forming the storage electrode, the storage electrode is formed with a liner film formed on at least a side surface of the opening interposed therebetween.

16. (Withdrawn): A method for fabricating a semiconductor device according to claim 14,

wherein

in the step of forming the storage electrode, the storage electrode is formed with a liner film formed on at least a side surface of the opening interposed therebetween.

17. (Withdrawn): A method for fabricating a semiconductor device according to claim 15, further comprising, before the step of conducting the heat treatment, the step of: etching the liner film by a required amount from a surface side of the insulation film.

18. (Withdrawn): A method for fabricating a semiconductor device according to claim 16, further comprising, before the step of conducting the heat treatment, the step of: etching the liner film by a required amount from a surface side of the insulation film.

19. (Withdrawn): A method for fabricating a semiconductor device according to claim 13, wherein

in the step of forming the storage electrode, the storage electrode of a cylindrical shape formed along a side surface and a bottom surface of the opening is formed.

20. (Withdrawn): A method for fabricating a semiconductor device according to claim 14, wherein

in the step of forming the storage electrode, the storage electrode of a cylindrical shape formed along a side surface and a bottom surface of the opening is formed.